



# Progress on the National Maps: Looking back to the last meeting and forward to the next.

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## Since the last meeting 6 years ago:

- Lidar and aeromagnetic data have revolutionized crustal fault investigations—beginning in 2000
- ANSS strong motion stations captured the Nisqually earthquake, today about 120 stations
- Six years of using SHIPS, other big experiments
- Nisqually earthquake, Sumatra, Katrina, Rita
- Champions for seismic safety in Olympia, Salem
  - IBC approved in both states
  - Seismic retrofit package in Oregon
  - Seismic network, state survey mandates, local emergency management in Washington

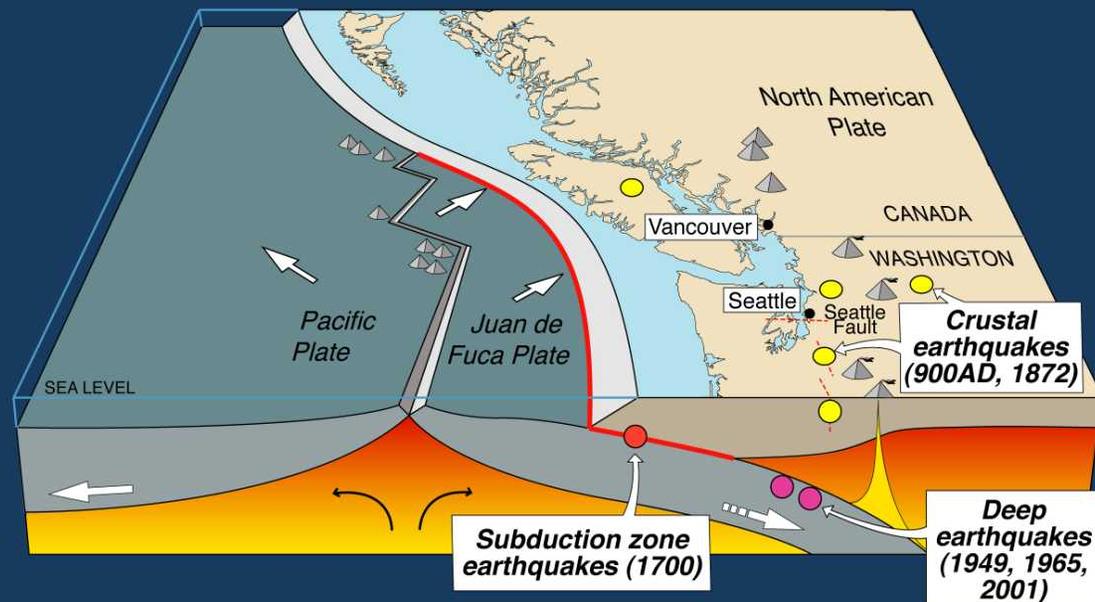
## But we still have ghosts from the past

- Long period, long duration Cascadia motions
- Benioff zone events beneath Oregon?
- Incomplete crustal fault assessment
- Relation between deep crustal earthquakes in Puget Sound and known Holocene faults
- How much hazard in Portland from crustal faults?

## For the next meeting to be successful

- Finish lidar collection
    - Western WA lowlands—Whatcom, Skagit, Snohomish
    - NW Oregon—are there any Holocene scarps?
    - Eastern slope of WA Cascades
    - Selected targets in Columbia Plateau
  - Aeromagnetic data
    - Fill gaps in western OR & WA
    - Eastern WA Cascades & Columbia Plateau
  - Increase ANSS stations
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- Integrate our regional tectonic & hazard models, e.g., the Relation between big crustal faults in Puget Sound and folds/anticlines on Columbia Plateau.

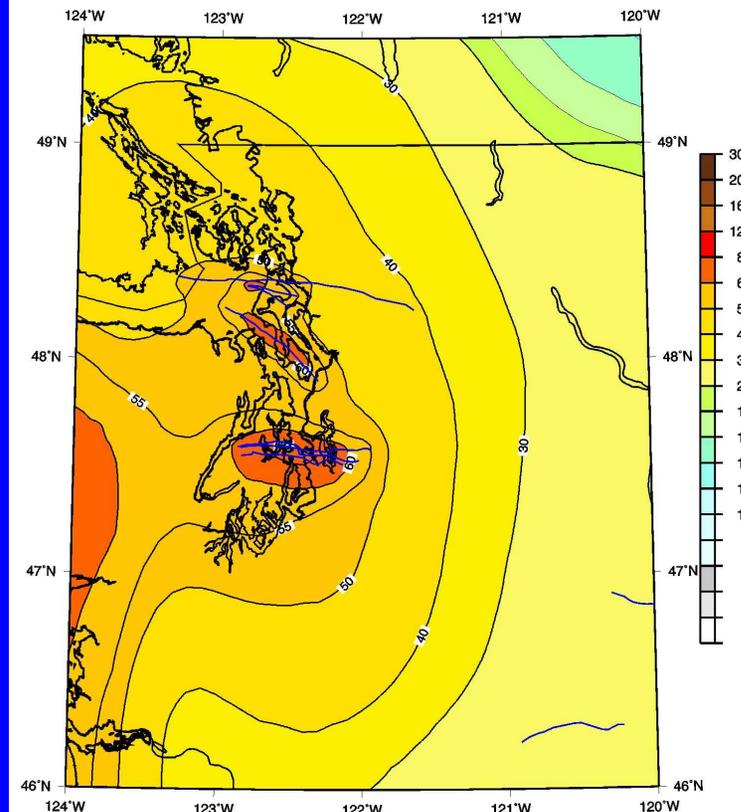
## Cascadia earthquake sources



Source	Affected area	Max.Size	Recurrence
● Subduction Zone	W. WA, OR, CA	M 9	500-600 yr
● Deep JdF plate	W. WA, OR	M 7	30-50 yr
● Crustal faults	WA, OR, CA	M 7?	?

# Seattle fault prominent in hazard maps

From 2002 USGS National Seismic Hazard Map  
PGA (%g) with 2% Prob. Of Exceedance in 50 Years



Earthquake Hazards Reduction  
Program



# The Seattle fault uplifted the beach on Bainbridge Island 7 m about 1100 years ago



Motion of the Oregon Coast Range is squeezing Puget Sound, and is loading the Seattle fault about 0.4 mm per year (1000 yrs = 4m)

